

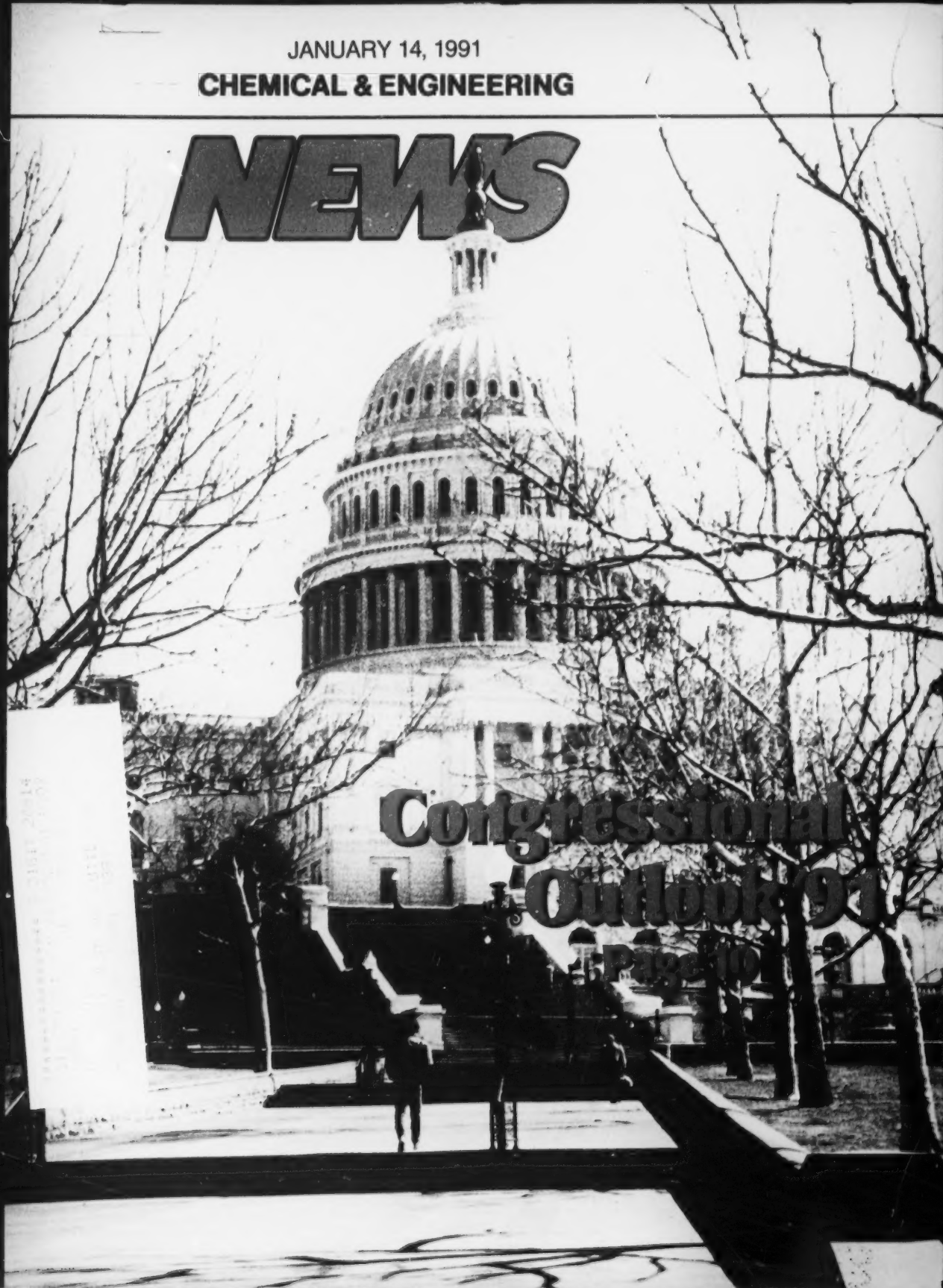
JANUARY 14, 1991

CHEMICAL & ENGINEERING

NEWS

**Congressional
Outlook '91**

Page 10



News of the Week

■ Utah's cold fusion research institute drops Pons and Fleischmann from its staff, but is requiring them to cooperate with a review group in verifying their experiments, or their funding will end. **Page 4**

■ Outlook for the chemical industry in Western Europe this year is gloomy with demand slowing and production continuing to decline, according to recent U.K. Chemical Industries Association conference. **Page 5**

■ Scientists express increasing concern about possible ecological disaster from any war in the Persian Gulf as mid-January deadline nears. **Page 5**

■ Supreme Court denial of appeal by Dow and Shell in suit by Costa Rica workers over pesticide exposure means foreigners can sue the two companies in Texas courts. **Page 6**

Business

Canadian chemical firms strongly back new value-added tax that likely will make their chemical exports more competitive. **Page 17**

Arco Chemical has agreed to pay a record \$3.48 million fine for alleged workplace violations leading to the explosion last summer at its Channelview, Tex., facility. **Page 18**

Government

Nobelist Leon Lederman's recent AAAS report on state of academic science and the need for higher funding touches off sharp dispute within science policy community. **Page 20**

Science/Technology

Sterically inducing conformational change in porphyrins promises way to vary electron-transfer rates in some basic reactions. **Page 23**

Two technetium-99m compounds for cardiac imaging that provide better quality pictures of the heart are approved by FDA for marketing. **Page 24**

Books

"Laboratory Health and Safety" covers wide range of subjects, some better than others; 4th edition of "Bretherick's Handbook of Reactive Chemical Hazards" is a comprehensive, valuable tool. **Page 26**

Cover: Photo by C&EN's David J. Hanson

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News Focus

The specter of fighting in the Middle East dominates the 102nd Congress' discussions despite an agenda that includes energy, environmental, science ethics, and global change issues **Page 10**

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LETTERS

CHEMICAL SAFETY

Treatment for eye irritants

Ronald C. Moyer described an unexpected ocular reaction to exposure to isopropylidimide (C&EN, Nov. 5, 1990, page 2). The injuries he described, in type, duration, development, and recovery, are identical to standard descriptions of mild to moderate mustard gas injuries. The molecular mechanism of mustard gas is alkylation of nucleophilic functional groups of intracellular components, especially the guanine on DNA, which occurs within minutes of exposure. The affected cells are unable to function and reproduce and die off, causing the symptoms. No treatment, except immediate washing off of the chemical and supportive care until the wounds heal, is possible.

In view of their chemistry and these observed biological effects, it is reasonable to assume that all alkylidimides are capable of functioning as

alkylating agents and are therefore vesicants and carcinogens. Users of these chemicals should avoid all contact by using glove boxes, fume hoods, full-face respirators, and similar means. If exposed, the usual washing off of affected surfaces, skin and eye, will minimize injury if started quickly enough.

For more details on this sort of injury and its treatment, the experts are the Army Medical Research Institute on Chemical Defense (USAMRICD), Aberdeen Proving Ground, Md. 21010-5425, and open publications such as their Technical Memorandum 90-1, "Clinical Notes on Chemical Casualty Care," and "Treatment of Chemical Agent Casualties and Conventional Military Chemical Injuries," Army TM 8-285, Navy NAVMED P-5041, Air Force AFM 160-11.

Harry V. Ellis III
Toxicologist, PRC Environmental
Management Inc., Chicago

Japan's biotechnology

In Bernard Wolnak's letter commenting on Japanese biotechnology (C&EN, Oct. 15, page 5), he cites reasons for their nonsuccess to date. At present, the U.S. leads the world in basic research and money spent on R&D. We are the prime source of products and technology in this neonatal field. This should not be considered "U.S. domination in the marketplace," as Wolnak put it, since few of the potential products of biotechnology have reached the marketplace. I offer, however, the following points as indicators of Japan's potential success.

- Biotech consumer products already reach large markets in Japan—biode detergent, biolipstick, and biowines. These prime their public as to the benefits of biotechnology with products they wash their clothes in, paint on their lips, and ingest. The awareness that biotech is good and is all around us has not occurred in the U.S.

- The San-Gaku-Kan interactions are indicative of good communications among the key players in Japan. In the U.S., we don't enjoy these good communications to the same degree. As an example, our recent survey of 242 U.S. biotech firms cited the Food & Drug Administration as their largest barrier to success.

- The coordination of technology de-

velopment by MITI and other Japanese government agencies is likely overrated, but these programs do serve as catalysts to get companies working with technologies they might have otherwise bypassed. They have also served to get some fresh blood in mature industries, such as Kirin entering pharmaceuticals through biotechnology.

- The U.S. is still the greatest source of basic research in biotechnology, with about \$3 billion spent on biotechnology R&D by the government. However, Japanese companies have ready access to the basic technologies and products via strategic alliances with U.S. companies. Their managers still point to U.S. biotech firms as sources of many of their biotech products. R&D is expensive, and the Japanese have been able to cut costs by licensing promising products at a fraction of the costs that U.S. companies incur to produce their own. And, the Japanese companies have bypassed much of the expense of basic research and wasted costs of failed product development.

- The Japanese biotechnology industry is primarily made of large corporations, many of which have the capital to play this expensive game and many with a strong history of succeeding in their industry both locally and globally. Their culture fosters methods to share or reduce risk. The majority of the U.S. play-

Electric Power Research Institute and the Department of Energy, saying "we will vigorously pursue" such funding.

Regardless of what happens to the institute, Will asserts that the conference series that was inaugurated there last year will continue. In June, the second annual cold fusion conference will convene in Italy. That country is perhaps the most fitting venue since it is, as far as Will knows, the only place in the world where researchers have observed the production of excess heat, tritium, and neutrons in the same experiment. Unfortunately, it's not reproducible.

Ron Dagani

West Europe chemicals face gloomy 1991

A gloomy picture of Western Europe's economy was painted last week at the annual Business Outlook Conference of the U.K. Chemical Industries Association (CIA). Some nations are moving into a recession or are already there, and others show slowing demand, which eventually will mean less chemical production required.

In 1990, chemical output in Western Europe rose barely 2% over that in 1989, less than the growth of manufacturing overall, reports Richard Freeman, chief economist at ICI and chairman of the economic outlook committees of both CIA and the European Chemical Industry Federation. For 1991, he expects chemical growth of 2% again, while overall manufacturing grows more slowly. However, war in the Persian Gulf could wreck such predictions.

In the U.K., chemical production will continue to decline in 1991, dropping 1% from 1990, which in turn was down 0.6% from 1989. Current forecasts for the other countries, Freeman adds, may be somewhat overoptimistic, except for the German chemical industry. "Germany is the locomotive which is pulling the rest of Europe along," he notes, fueled by the need to supply the newly consolidated eastern part of the country. In fact, German chemical industry cannot supply all

the demand, necessitating imports from other European countries, especially France—in turn, requiring higher production by them.

However, there will be a limit to that extra demand and production. And as domestic economies slow, causing a slowdown in imports, competition will intensify for potential exports. Further competition will come from the U.S., with the weak dollar making U.S. prices relatively low. Freeman believes the optimistic forecasts assume too much strength in the export market: "Where are all those exports going to go?"

For the U.K. in 1991, Freeman's CIA panel predicts growth only for production of pharmaceuticals (up 3%). For detergents, cosmetics and perfumes, and fibers, output will remain about the same as in 1990, while other sectors will show losses. The most severe drop—4%—will come in organics, plastics, and dyes. Organics and dyes also fell in 1990.

For other West European countries, widely varying performances are projected for different chemical sectors. However, aggregate forecasts are more positive than for the U.K.—particularly welcome for organics and plastics. For example, only Italian producers expect a further fall in organics. For all Western Europe, the fall of 2% in plastics production in 1990 will be reversed this year, to show growth of about 2.5%. Fibers output is expected to be flat, as is that of the troubled fertilizer sector.

As for capital investment, with both production and demand weak-

ening, and substantially reduced profits in 1990, firms are cutting investment plans everywhere, Freeman notes. "Total investment in Western Europe, including the U.K., is forecast to be unchanged in 1991 after rising by nearly 8% in 1990." However, he adds, his panel would not be surprised if investment were cut even more.

This comment led to a warning against over-hasty cutbacks from Robert Malpas, recently retired chairman of BP Chemicals and now a director of London-based merchant bankers, Baring Brothers. "Now is the time to make sure every single investment that can be justified, for energy efficiency, process yield improvement, and so on, is made," he stresses. "If these investments are cut back now, it will only delay getting true productivity gains."

Patricia Layman

Scientists say Gulf war could devastate ecology

The long-term environmental costs of war in the Persian Gulf are "likely to outstrip all other costs, great though those will be," claim Paul Crutzen, an atmospheric chemist and director of the Max Planck Institute in Germany, and several other well-respected scientists.

They sounded this warning at press conferences in London on Jan. 2 and in New York last Friday, at which they announced formation of an international scientific task force. The task force would act as an environmental crisis management network, deployed swiftly to advise political leaders in the early days of future crises, explains physicist Abdullah Toukan, chief scientific adviser to King Hussein of Jordan.

The scientists' fear of ecological disaster is based on the assumption that Iraqi President Saddam Hussein will detonate the Kuwaiti oil wells some military strategists say he has mined. Such detonations could set ablaze up to 1000 oil wells and burn about 3 million barrels of oil per day, estimates John Cox, a British chemical engineer and independent consultant to an oil company operating in the Persian Gulf. It could take

European chemical output may slow next year

	% change	
	1990-91 ^a	1991-92 ^b
Belgium	5.5 %	4.0 %
France	1.25	2.5
Germany ^c	2.0	2.0
Netherlands	1.5	2.0
Italy	1.5	0.4
Spain	3.5	3.0
U.K.	-0.6	-1.0
TOTAL WESTERN EUROPE	2.0 %	2.0 %

^a Estimated. ^b Forecast. ^c Western German chemical industry only. Source: Individual countries' chemical industry associations